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Date

6-2-1999

LaVerne Whetstone

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of:

Albert J.J. VAN OOIJEN et al.

Serial No.: 09/003,047

Filing Date: January 5, 1998

For: TRANSGENIC PLANTS HAVING A
MODIFIED CARBOHYDRATE
CONTENT

Examiner: O. Zaghmout

Group Art Unit: 1649

SUPPLEMENTAL RESPONSE

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This is a supplemental response to the Office action dated November 24, 1998. A complete response was filed on May 24, 1999.

REMARKS

Reconsideration is respectfully requested in light of the arguments previously presented in the response filed on May 24, 1999 and the arguments, which follow, that are directed at the rejection of claims 1, 26-28, 36, 39, 42, 45, 48, 51, 54-58 under 35 USC 112, first paragraph.

dc-154693

Applicants agree that the specification do not provide an example dealing with the transformation of a plant with a microbial glucanase. However, this is not required for enablement. The Examiner's the main objection appears to be that expression of the genes is very critical in the light of the fact that the process of transforming plants with individual genes to obtain desired phenotypes is unpredictable. The Examiner illustrates this with the Napoli *et al.* and Carvalho *et al* publications. However, these references are not concerned with microbial source genes. Rather, the publications are concerned with the use of plant-derived genes for transformation to plants within the same genus or even the same species. Given the close relationship of the plant from which the gene was obtained and the plant into which the gene has been transformed, it could be expected that there is interference with the endogenous gene already present in the host plant. This problem is much less present when a microbial gene is used, for, even if a functional homologous gene is present in the home plant. The microbial gene differs significantly from any endogenous gene.

Further, the Examiner argues that the instant disclosure fails to teach the factors which are essential for successfully expressing a glucanase gene of microbial origin. The Examiner based this argument on the presumption that the expression of nonplant genes in plants needs modification of the coding sequence. However, Applicants have shown in the specification that for the expression of two microbial enzymes, α -amylase and gluco-amylase, no modification of the coding sequence was needed (see Example 2 and Example 9). In light of this, the unpredictability, which concerns the Examiner, is not at the levels which would discourage the skilled practitioner.

Further, this rejection appears to be at odds with the rejection(s) under 35 U.S.C. § 103 where the Examiner indicates that, although none of the cited references disclose expression of microbial enzymes in plants, it would have been obvious for a person skilled in the art to express heterologous genes in plants (see page 10, lines 14-15 of the Official Action). It is respectfully submitted that at least one of the rejections should be with drawn for the sake of consistency.

Withdrawal of the rejection is respectfully requested.

CONCLUSION

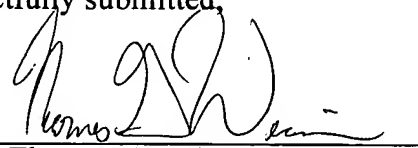
Applicants have previously amended the claims to obviate the rejections raised under 35 U.S.C. § 112. Applicants have further demonstrated that methods for introducing a transgene into a cassava plant and the subsequent regeneration of cassava plants from the transformed cassava plant cells were known in the art at the time of the present invention. Such methods could be used in the present invention without undue experimentation. Accordingly, Applicants respectfully request that the Examiner reconsider the rejections of the claims, that he withdraw same, and that he pass the application to issue. If, in the Examiner's opinion, a telephonic interview would expedite the prosecution of this case, he is respectfully requested to contact Applicants undersigned representative at (202) 887-1678.

In the unlikely event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952**. However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: May 24, 1999

Respectfully submitted,

By:



Thomas G. Wiseman
Registration No. 35,046

Morrison & Foerster LLP
2000 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-1888
Telephone: (202) 887-1678
Facsimile: (202) 887-0763